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THE IMPACT OF THE JFACC AND AADC ON THE JOINT FORCE COMMANDER'S
FLEXIBILITY IN JOINT THEATER AIR AND MISSILE DEFENSE

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract of

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As a growing area of warfare, Joint Theater Air and Missile Defense (JTAMD) presents an environment that challenges the U.S. military to achieve unprecedented levels of force integration. As the ballistic and cruise missile threat continues to expand and include weapons of mass destruction, the Joint Force Commander must employ a force package capable of succeeding in any theater, regardless of its maturity level. Joint doctrine, and the roles and missions of the Joint Force Air Component Commander (JFACC) and Area Air Defense Commander (AADC), play an integral part in his ability to execute JTAMD effectively and efficiently.

The JFACC and AADC currently inhibit force effectiveness through disparities and overlap of missions, as well as frequent dual and triple hatting functional and service component commands. Resultant problems include inappropriate apportionment of resources, lack of focus on the objective, and inadequate staffing at the functional component command. All of these problems degrade force integration and reduce both effectiveness and efficiency. Solving these problems, primarily through more specific joint doctrine that provides distinct roles for the JFACC and AADC, will produce defense in depth, unity of effort and economy of force.

Introduction

Theater Missile Defense (TMD) represents the fastest growing warfare area in today's military, and an environment more complex than any other by both nature and design. Environmental complexities originate in the expanding threat, in terms of both numbers and employment methods. TMD's other complexities come from its design: Joint Pub 3-01.5, Doctrine for Joint Theater Missile Defense, states that, "TMD is inherently a joint mission."¹ One need only add the requirement to integrate TMD with existing and future command and control architectures, then factor in potential combined TMD operations with our allies, and the resulting complexity challenges the U.S. military to achieve unprecedented levels of force integration.

Joint doctrine intends to provide a basic roadmap for success in solving this problem, one that gives the Joint Force Commander (JFC) the tools and procedures he needs, and the flexibility to adjust them as a specific situation dictates. A central question in this regard lies in how the concept of the Joint Forces Air Component Commander (JFACC) and Area Air Defense Commander (AADC) operate in a joint force to allow the JFC this flexibility.

This paper will examine the roles of the JFACC and AADC, and illustrate ways in which they have and have not put the JFC in position to effectively execute TMD. Discussion will lead toward whether a dual hatted JFACC/AADC, often serving also as a service component commander, adds to or detracts from the unity of effort in a joint force. Through this examination, and by forecasting the future of TMD, the paper will conclude that these two warfare commanders do not currently provide the flexibility the JFC needs. By truly employing

¹ U.S. Joint Chiefs of Staff, Joint Pub 3-01.5, Doctrine for Joint Theater Missile Defense (Washington, DC: 1996), p. vii.

joint doctrine, however, the individual services will enable both a unity of effort and an economy of force in the Theater Missile Defense arena.

Background

The Threat

Understanding the problem first requires a discussion of the threat, represented in simpler times by Soviet ballistic missiles. Other short and medium range surface- and air-to-surface cruise missiles formed a separate problem, bound tightly by the limited number of nations that had them and the maritime environment in which they thrived. Theater Ballistic Missile Defense (TBMD), while challenging, remained relatively uncomplicated in its scope and its command and control architecture. The lack of focus on jointness in the U.S. military compounded this simplicity: both operationally and tactically, with the possible exception of the Navy and Marine Corps, the services distinguished their roles along distinct service lines and provided distinct solutions.

This uncomplicated world exploded in the last decade, as launch platforms became more varied and mobile, the number of nations that possessed these weapons increased, and the inclusion of weapons of mass destruction (WMD) entered the problem. Today over twenty non-NATO nations possess ballistic missile capabilities; many of these nations have or will acquire WMD and cruise missile technology. The decreasing cost of these weapons will only further their proliferation: in early 1995, estimates put the price of a simple, accurate cruise missile at less than \$350,000.²

² U.S. Joint Chiefs of Staff, "Joint Theater Missile Defense CONOPS" (Washington, DC: 1995), p. 8.

The current strategic pause both simplifies and complicates the threat. Leaders of all the services accurately point out, "The strategic pause accompanying the end of the Cold War creates a window of opportunity in which to apply emerging technology, advance new warfighting capabilities, and test new doctrinal concepts..."³ Other nations, including potential adversaries and near-peer competitors, have the same opportunity to exploit this pause. Table 1 indicates some of the ballistic missiles U.S. forces may encounter.

Table 1: Ballistic Missiles of Developing Countries

Country	Range Category (km)					Supplier
	30-250	300	500-650	900-1200	>1500	
Afghanistan		Scud B				USSR
Argentina	Alacran			Condor 2		Indigenous
Brazil	MB/EE-150	MB/EE-300	MB/EE-600	MB/EE-1000		Indigenous
	SS-150	SS-300		SS-1000		Indigenous
China	B-610	M-11	M-9		CSS-2	Indigenous
Egypt		Scud B	Scud-C			USSR
		Scud B		Vector		North Korea Indigenous
India	Prithvi				Agni	Indigenous
Iran		Scud B	Scud C			USSR
	Iran-130	Scud B				North Korea Indigenous
Iraq		Scud B	Scud C Al Hussein			USSR
		Scud B		Al Abbas Badr 2000	Al Aabad	North Korea Indigenous Indigenous
Israel			Jericho 1		Jericho 2	Indigenous
	Lance					United States
Libya	SS-21	Scud B	Scud C M-9			USSR
				al Fatah		North Korea China Indigenous
North Korea		Scud B	Scud C	No Dong 1	No Dong 2	Indigenous
Pakistan		M-11				China
	Hatf 1	Hatf 2				Indigenous
Saudi Arabia					CSS-2	China
South Africa			Armiston			Indigenous
South Korea	NHK-1,-2	NHK-A				Indigenous
	Lance					United States
Syria	SS-21	Scud B	Scud C M-9			USSR
		Scud B				North Korea China
Taiwan	Green Bee			Sky Horse		Indigenous
Vietnam		Scud B				USSR
Yemen	SS-21	Scud B				USSR

Source: "Joint Theater Missile Defense CONOPS"

³ Naval Doctrine Command, "Naval Theater Air and Missile Defense Concept (Final Approval Draft)" (Norfolk, VA: 1997), p. 5.

Four Pillars

Amidst many disagreements on how to organize for TMD, there exists a foundation of consensus regarding what exactly TMD includes. Several assumptions apply:

- TMD forces will best eliminate the missile threat before its launch.
- The boost phase represents the best place to hit the missile after launch. This capability would provide an extraordinary deterrent, given the potential of an enemy's missile and possible WMD impacting on or over its own people.
- Given that some leakers will elude own defenses and continue toward their targets, U.S. forces must position themselves to eliminate the threat in its mid-course or terminal stages of flight. Many factors make the TMD problem most complicated at this point, including the missile's aerodynamics, its smaller radar cross section, and deconfliction problems with friendly forces.
- Assuming one or more missiles will reach their target, friendly forces must take measures to reduce the target's vulnerability and minimize damage to the greatest extent possible.

The four pillars of Theater Missile Defense emerge from those basic assumptions. Because they apply to any operational environment, and because joint doctrine has recognized TMD as an inherently joint mission, these pillars represent the foundation of Joint Theater Missile Defense. Figure 1 describes these operational elements.

PASSIVE DEFENSE	ACTIVE DEFENSE
APPLIES TO MEASURES TO:	APPLIES TO PROTECTION BY:
<ul style="list-style-type: none"> • Reduce Vulnerability • Minimize Damage 	<ul style="list-style-type: none"> • In-Flight Destruction • Destruction of Airborne Launch Platforms
INCLUDES:	INCLUDES:
<ul style="list-style-type: none"> • Deception • NBC Protection • Theater Missile Early Warning • Electronic Warfare • Countersurveillance • Recovery and Reconstitution • Camouflage and Concealment • Mobility, Dispersal and Hardening 	<ul style="list-style-type: none"> • Multitiered Defense In-depth via multiple engagements using land, sea, air, space and Special Operations Forces • Active Electronic Warfare to Disrupt Remote or Onboard Guidance Systems
ATTACK OPERATIONS	C4I
APPLIES TO:	APPLIES TO:
<ul style="list-style-type: none"> • Offensive action by land, sea, air, space and Special Operations Forces 	<ul style="list-style-type: none"> • Coordination of TMD operations with adjacent theaters while supporting lower echelon commands.
INCLUDES:	INCLUDES:
<ul style="list-style-type: none"> • Destruction, disruption, or neutralization of theater missile launch platforms, supporting C3, logistics, and reconnaissance, surveillance, and target acquisition platforms 	<ul style="list-style-type: none"> • Timely and accurate systems to plan, monitor, direct, control, and report TMD operations. • Integrated systems of doctrine, organizational structures, facilities, communications, computers, supporting intelligence, and missile warning and cueing by sensors and ground stations.

Figure 1: The Four Operational Elements of JTMD

Source: Joint Pub 3-01.5, p. I-4.

Doctrinal Responsibilities

Joint doctrine does not make the roles of the JFACC and AADC in Joint TMD perfectly clear. It identifies the AADC as the commander with "...overall responsibility for air defense....," and goes on to say that he will normally "...be the component commander with the preponderance of air defense capability and the command, control and communications capability to plan and execute integrated air defense operations."⁴ As for the JFACC, his responsibilities will:

⁴ Joint Pub 3-01.5, GL-2.

"...include, but not be limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision ... and in coordination with other Service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to the joint force commander apportionment of air sorties to various missions or geographic areas."⁵

Doctrine has left unsaid which component commander has explicit responsibility for each element of TMD. The operational environment has transcended the traditional conceptions of TMD and TAD, and this has compounded doctrine's lack of clarity in today's environment known as Joint Theater Air and Missile Defense (JTAMD). While recognizing that doctrine does not intend to tell the commander exactly how to run his joint force, it should provide philosophy that will consistently guide the individual services. Incorporating this idea has met significant challenge.

Initial Problems: Service Perceptions

An initial problem in building effective and efficient JTAMD procedures emerged through differing service perceptions. The Army sees Theater Air Defense as two distinctive areas: counter air, or the protection of forces from fixed- and rotary-wing aircraft, including UAV; and TMD, to include all ballistic and cruise missiles. The Navy's Composite Warfare Commander concept distinguished between TMD attack operations, conducted by the Strike Warfare Commander, and defensive counter air in the hands of the Air Warfare Commander. The maritime service viewed the JFACC not as a functional component commander, but as a resource coordinator who manages joint air assets for the Strike and AW commanders.⁶ Like the

⁵U.S. Joint Chiefs of Staff, Joint Pub 3-56.1, Command and Control for Joint Air Operations (Washington, DC: 1994), p. vii.

⁶ William W. Beaumont, "Disjointed: U.S. Doctrine for Countering Air and Missile Threats," Unpublished Research Paper, U.S. Naval War College, Newport, RI: 1996, p. 6.

Army, the Marine Corps traditionally viewed the problem as one of point defense and force protection, accomplished by the Hawk system against short-range theater missiles.⁷

The Air Force argument views the JFACC as the supported commander with operational control (OPCON) over theater air defense assets. As for the scope of those assets, the Air Force says that "Defeating enemy air and missile threats with limited resources requires theater-level organization, planning and control. Currently theater air and missile defense operations fall within established Air Force roles and missions; missile defense is part of counter air."⁸

Joint doctrine, seen as an arbitrator and an authoritative document, has never clarified the roles of the JFACC and AADC, or their subsequent control of forces. Initial attempts met criticism from many directions, including the Office of the Secretary of Defense: "JCS Pub 3-01.5 outlines what ought to be accomplished for effective TMD. However, it does not institutionalize or provide a basis for developing the means to execute TMD nor for integrating the various systems into a joint capability for successful missile defense."⁹

Joint Pub 3-01.5 dictates that the Joint Force Commander will normally assign responsibility for air defense in the theater or Joint Operating Area to the AADC, with specific forces under OPCON of their component commanders and employed using procedures established by the AADC. The JFACC will maintain responsibility for conducting JTAMD attack operations outside the other component commanders' areas of operation; attack operations within the AO fall to the respective component commander. Thus two separate commanders

⁷ Daniel A. Augustine, "Theater Missile Defense: A Primer for the Uninitiated," Unpublished Research Paper, U.S. Naval War College, Newport, RI: 1997, p. 25.

⁸ U.S. Department of the Air Force, "USAF JFACC Primer" (Washington, DC: 1994), p. 34.

⁹ U.S. Department of Defense, "Report on the Defense Science Board/Defense Policy Board Task Force on Theater Missile Defense" (Washington, DC: January 1996), p. 29.

perform two distinct operational elements, active defense and attack operations.¹⁰ Joint Pub 3-56.1, however, assigns the JFACC responsibility to plan, coordinate, allocate and task joint air operations as the supported commander for counter air, strategic attack, theater airborne reconnaissance and surveillance, and air interdiction.¹¹ Any missions left may also go to the same commander: "The responsibilities of the JFACC, ACA (Airspace Control Authority) and AADC are interrelated and should normally be assigned to one individual."¹²

That doctrine models one interpretation of the USAF plan for joint operations. Regarding the doctrinal issue of who commands and controls active TMD efforts, "The Air Force would prefer the 'who' to be the JFACC, and the 'how' to be the same as for theater air defense."¹³ The most recent manifestation of this philosophy emerged in the Command Organization Architecture for CJTFEX 98-2, specifically in the plan for the Mature Operations Level 4 JFACC. In this exercise, the Air Force Component Commander (AFFOR) would serve as the JFACC, AADC and ACA, operating out of a single Joint Air Operations Center. The staff would consist of AFFOR personnel, with liaisons from the other components.¹⁴

Problems of Unity of Command

Joint doctrine provides the rationale for the JFC assigning the roles of the JFACC, AADC and ACA to one individual. Additionally, nothing prevents that one commander from being one

¹⁰ Joint Pub 3-01.5, p. x-xi.

¹¹ Joint Pub 3-56.1, II-2.

¹² Ibid., II-4.

¹³ Lt. Col. Charles A. Anderson and Col. (Ret.) Richard G. Kurtz, "Air and Missile Defense: Who's in Charge?," Air Defense Artillery, July-August 1996, p. 3.

¹⁴ "Command Organization Architecture," Wiring diagram for CJTFEX 98-2, received from Naval Doctrine Command.

of the service component commanders. While today's joint theater air missile defense environment seems to lend credence to this philosophy, it will in fact lead to three basic problems: inappropriate apportionment of resources, lack of focus on the overall objective, and inadequate staffing at the functional component command. Unity of command will not always lead to unity of effort, and may degrade the JFC's ability to conduct effective JTAMD.

Apportionment

Apportionment of air assets involves the determination and assignment of the total expected effort in each functional area by percentage of resources and priority of missions. Although the JFC provides guidance to the JFACC regarding priorities, he does this based on recommendations from the JFACC. Categories of air operations that receive forces include: strategic attack, air interdiction, counter air, maritime support and close air support.¹⁵

Apportionment by percentage, however, relies not on guidance from the JFC but on the ATO written by the JFACC. This requires reverse-engineering the process, in effect writing the ATO first and then apportioning assets appropriately.¹⁶ While this approach may have worked in a one or two-dimensional environment (for example close air support), it will fall short in a high threat, high tempo environment crossing service and functional boundaries.

One solution to this problem lies in apportioning assets based only on the prioritization of three operational categories: theater air interdiction, battlefield air interdiction, and offensive counter air.¹⁷ The JFC could take this idea one step farther and organize the JTAMD effort

¹⁵ Joint Pub 3-56.1, II-9.

¹⁶ Col. J.L. Whitlow, "JFACC: Who's in Charge?," Joint Forces Quarterly, Summer 1994, p. 65.

¹⁷ Ibid., p. 68.

around three component commanders. A theater air interdiction commander, presumably from the Air Force, would orchestrate attack operations using strike aircraft and precision guided munitions; a battlefield air interdiction commander, the AEGIS cruiser commanding officer, would coordinate active defense measures with command and control links to shore based Army/Marine Corps point defense systems and future theater-wide systems; either the carrier air wing commander or an appropriate land-based asset would provide offensive counter air.

Focus on Objective

The doctrinal provision of dual and triple hatting commanders will often result in functional overload. While the responsibilities of the JFACC, AADC and ACA are interrelated, the specific duties focus on different missions. As exercises have borne out, placing these diverse missions on one commander risks having him revert to focusing on single service operations, and hence limiting mission accomplishment.

In Exercise BRIGHT STAR 94, the JFC designated the AFFOR commander as the JFACC, AADC and ACA. According to the observer from the Joint Staff, the activities of these three functional areas, run out of a single Joint Air Operations Center, primarily focused on single service operations. The observer continued,

“Because of the natural tendency of a component commander to focus on the tactical level, it is more conducive to successful joint task force operations for the JFACC to wear only one hat. Separating the JFACC responsibility from the AFFOR or any other component commander helps ensure his focus on the operational level employment of all air assets in support of the JTF campaign.”¹⁸

Perhaps because the JFACC usually focuses on attack operations, the final comment from the JCS observer was predictable: “Although an AADC (the AFFOR) was designated for BS 94,

¹⁸ CJCS JDC. “AFFOR Multi-hatted as the JFACC, AADC and ACA in BS 94.” JULLS Database, November 1993.

there was no joint/multi-national air defense plan developed or similar air defense operation conducted at the JTF level.”¹⁹

A later exercise, ROVING SANDS 95, produced a similar effect on JTAMD when service orientation again ruled the day: “The focus of TMD at the JFACC level was clearly on the ‘Attack Operations’ pillar of TMD throughout Joint Exercise ROVING SANDS 95 ... it resulted in too little attention being placed on the Active Defense piece of the ‘Defensive Operations’ pillar.”²⁰

A solution exists for the overload problem created by dual and triple hatting the JFACC/AADC: keep them as separate commanders working toward the joint mission. In Exercise OCEAN VENTURE 93, the JFC designated the afloat Navy Rear Admiral as the JFACC, with tactical - not operational - control of air assets offered by the service component commanders as excess sorties. With a staff of equal service representation, the JFACC “...operated in an evenhanded way with respect to the service component commanders” and accentuated joint counter air operations.²¹

Inadequate Staffing

The existing joint doctrine instructs, “The JFACC’s staff should be organized and manned so that component representation reflects the composition of the joint force ... [to] provide the JFACC with the expertise needed to effectively employ the capabilities/forces made

¹⁹CJCS JDC. “Area Air Defense Commander (AADC) for BRIGHT STAR 94.” JULLS Database, November 1993.

²⁰Commander, U.S. Naval Central Command. “Theater Missile Defense Focus.” JULLS Database, May 1995.

²¹ Beaumont, “Disjointed: U.S. Doctrine for Countering Air and Missile Threats,” p. 9-10.

available.”²² The JFACC staff may not always meet this mandate, however, and in fact did not come close in Operation DESERT STORM, this nation’s only operational JTAMD experience. Geographically separated from the JFACC, who located ashore also as the AFFOR commander, the Navy and Marine Corps relied on their staff representation to keep them in the operational plans. They fell critically short in this regard: on a staff of over 1000, the JFACC included only forty naval officers. Only seven Navy and one Marine officer served in a planning cell consisting of several hundred members.²³ Two problems led to this lack of component representation on the staff: the naval service’s inability to integrate into the joint force in 1991, and the JFACC’s failure to drive itself to operate as a joint force component commander.

The cause of this void goes back to the joint doctrine that deals expressly in generalities and ad hoc joint task forces. The CINC would better assure equal service representation on component staffs by creating a standing JFACC with personnel identified by billet from component commands. Such a staff could train on a routine basis, and would also allow for changes based on the existing threat with less force degradation than would exist in an ad hoc staff with under-representation as the normal state of affairs.

A standing JFACC staff may also allow the JFC to dual hat the JFACC/AADC as he desires. In this setting the commander would have ample time to exercise, dialog and revisit mission degrading issues, such as a lack of focus on any one of the TMD operational elements. In an ad hoc staff, whether for an exercise or an actual operation, the pace of events will dictate how well the dual or triple hatted commander redresses critical issues before they prove costly.

²² Joint Pub 3-56.1, II-8.

²³ Thomas A. Parker, “The Navy Got It - Desert Storm’s Wake-up Call,” Proceedings, September 1994, p. 35.

Future JTAMD: Realities and Recommendations

The challenges of future JTAMD will more clearly present themselves early in the next millennium. While exercises and any real world operations will prove the basic concepts of the JFACC and AADC, the technology push toward building attack and active defense systems will flood the market with new resources (see Appendix A). These myriad resources will expand the battlefield, just as advances in communications and network-centric warfare will expand the number of players with real-time tactical pictures. At this point the counter air component commanders must step up and incorporate all the tools into an effectively orchestrated operational environment.

Defense in Depth

The limited nature of the problem to date has posed significant challenge in the C2 of JTAMD; in the future, even after effective TTP are developed and practiced, the abundance and variety of assets will simply overwhelm any single staff. Dual hatting one commander as the JFACC and AADC will allow leakers; either attack operations or active defense will suffer, while passive defense will become an after thought. Separating the JFACC and AADC as individual commanders will allow the JFC's unity of command to produce unity of effort.

The product of resources employed across the theater by distinctive warfare commanders will be the holy grail of joint operations: defense in depth provided by a true combined arms concept. Attack forces and active defense assets controlled by staffs focused on the joint force mission, not on service dependent objectives, will provide both better effectiveness and efficiency. Neither operational element will forfeit its mission, but defense in depth will make the scope of the threat more manageable.

Technology, Doctrine and Locating the Commanders

Employment of joint forces in the future will continue to occur most often in the littorals, and naval forces will frequently arrive first on station. The operational environment drives the afloat commander to exercise command and control of the JTAMD effort as either the JFACC or AADC. The existing fleet limits that afloat commander in his ability to serve in this capacity due to command and control and logistics limitations met when controlling an MTW scale of a JTF from sea.

The question lies in whether the afloat commander has the communications ability or staff support to effectively serve as the JFACC or AADC in a high paced TMD environment. In Exercise TANDEM THRUST 95, the JFC (Commander Seventh Fleet) designated the Commander, Carrier Group One as JFACC onboard the USS Kitty Hawk (CV-63). The exercise intended to test the idea of the afloat JFACC, and in that limited scenario it worked satisfactorily, showing that the JFACC could handle operations involving several aircraft carriers and a composite airwing for short duration. But it also showed the exercise commander that "...larger operations, and operations lasting more than several weeks, would exceed the capability of the JFACC staff. Operations of that size should be transferred to a landbased JFACC with the appropriate staff."²⁴

What remains unasked is what would happen if that transfer ashore could not occur smoothly, if at all. This transfer will challenge operators at every level, and success will require frequent exercise. Attempts to do this during Exercise MATADOR 96 proved unsuccessful, as

²⁴JCS (J7). "TANDEM THRUST 95 Assessment Report." JULLS Database, November 1994.

the transition occurred administratively, "...but no formal hand over procedure was executed."²⁵ Citing a lack of doctrinal procedures for the transition, CINCUSNAVEUR also recommended that future exercises include "...a simulated launch event ... during the transition period so that a skeleton crew on either the ship or shore [will] have to process the alert in a somewhat degraded situation."²⁶ Exercise planners should act on this excellent recommendation before anyone determines joint doctrine sufficient for JTAMD.

As for location of the commanders, the future AADC in a joint theater must be afloat on the AEGIS cruiser whenever possible. To get to that point, the Navy must continue to develop and improve the fleet's C2 infrastructure. With an even better C4I capability than its current combat systems suite, the cruiser will employ the cooperative engagement concept to effectively control assets both ashore and afloat. In cases where a mature theater allows the JFC to move the AADC ashore, the CG will still play a vital role as the Rear Air Defense Commander after the hand-off is complete.

Unified Effort Toward Economy of Force

Many military and civilian writers have documented that the U.S. must integrate its JTAMD forces. Doing so will not only develop unified effort, but also serve another principle of war, economy of force. While this point remains valid, the JFC must ask himself at what cost U.S. forces will achieve that principle.

The issue comes down to balancing effectiveness and efficiency. An expensive force will expend all its resources against a threat and achieve total success, leaving planners to wonder

²⁵ Commander in Chief, U.S. Naval Forces Europe. "TMD Cell Handoff Procedures." JULLS Database, May 1996.

²⁶ Ibid.

how many targets received dual treatment unnecessarily. Conversely, the force that returns with resources unspent, and casualties to report, will not have served its purpose.

Somewhere in between lies economy of force. The future JTF must ensure that while it does not use assets where unnecessarily, it certainly uses the assets required to eliminate the threat. In the joint operating area of 2010, with active defense and attack forces spread across the theater, the component commander must ensure he uses assets like the Airborne Laser, PAC-III and Navy Theater Wide system in concert, not in competition. The same principle will apply to attack forces, including the Joint Strike Fighter and Tomahawk missiles.

Distinctively differentiating between the missions of the JFACC and AADC will achieve economy of force. Doctrine must dictate that the JFACC provide attack operations, and the AADC provide active defense. Administrative functions like the ATO will deconflict forces, leaving their employment throughout the theater to their operational commander. Should a missile elude that operational commander, the individual unit commander will always retain the inherent responsibility and right of self-defense.

Conclusion

This treatment has sought to examine the relationship of the JFACC and AADC, and how they may best serve the Joint Force Commander. It recognizes the assumption that in a mature theater, functional commanders will best locate ashore due to complexities of communications, logistics and coalition warfare. Also, the theater of operations of 2010 and beyond will not reach maturity, if at all, before significant numbers of joint forces arrive on station. In that future environment joint doctrine will play the pivotal role in U.S. military success, and should provide

specific direction. Specificity need not reduce the JFC's flexibility, and in fact should enhance his overall combat capability.

The future JFC must better apportion his assets to make certain they meet operational objectives; prioritizing between attack operations, active defense and offensive counter air would serve that purpose. The JFC must also keep his functional commanders focused on their objectives, not clouding the operational picture by dual or triple hatting either the JFACC or AADC. Finally, the individual commanders must have staffs appropriate in size, experience and service representation. Failure to solve these problems of apportionment, focus and staffing will force the military envisioned in JV2010 to fight as it did in 1991. Solving them, however, will realize a Joint Theater Air and Missile Defense effort that results in defense in depth, maximizes technology to work for the JFC, and achieves the principles of unified effort and economy of force.

APPENDIX A: JTAMD CURRENT AND FUTURE RESOURCES

The following brief descriptions of JTAMD assets intend only to scratch the surface of their capabilities and provide a foundation for understanding the complexity of the future JTAMD environment. All information in this appendix comes from a Ballistic Missile Defense Organization document, "BMC3/SE&I," Revision 2, 03 June 1996.

Current Capabilities

PATRIOT PAC-2 Weapon System (Army): a mobile guided missile system designed to intercept and destroy unmanned aerial vehicles, manned aircraft and theater missiles. PATRIOT engages short and medium range missiles within the atmosphere as part of Active TMD's lower tier. Future plans include upgrades to the PAC-3 system, scheduled for completion by FY99.

HAWK Missile System (Marine Corps): a radar and missile system designed to provide a mobile defense capable of 360 degree surveillance and the ability to engage multiple targets. An Active TAMD lower tier system built to counter cruise missiles, HAWK's planned upgrades include a limited defense capability against short range ballistic missiles.

Mid-term Capabilities (FY99-02)

Navy Area TBMD: This system will reside in AEGIS cruisers and destroyers in the Navy, employing the AEGIS Combat System, the AN/SPY-1 radar and the SM-2 Block IVA missile to provide a lower tier TBMD capability. Benefits of this system will include 360 degree surveillance, missile control by command guidance, and automated engagement of multiple targets with the capability for human override.

Advanced Concepts for JTAMD Active Defense (beyond 2002)

Airborne Boost Interceptor (ABI): the ABI, a kinetic energy weapon system, will intercept TBMs shortly after launch and while over enemy territory, before booster-warhead separation. Fighter aircraft, particularly Combat Air Patrol, will carry and launch the ABI.

Airborne Laser (ABL: Air Force): the ABL will destroy TBMs during their boost phase of flight while still over the enemy's territory. The system will consist of a high energy (speed of light) laser and beam control installed on a widebody aircraft, and will have a self-contained sensor system to detect and track TBMs.

Navy Theater-Wide Interceptor: besides the Navy Area TBMD system, AEGIS cruisers and destroyers in the long term will provide an upper tier capability to destroy TBMs in exoatmospheric space, as well as the ability to intercept missiles in the ascent phase. Required upgrades will include a new long range upper tier weapon.

Medium Extended Air Defense System (MEADS): an international program, the U.S. portion (Corps SAM) will provide a mobile 360 degree, lower tier defense against a variety of theater air and missile threats. MEADS will consist of weapons, sensors and C3I systems designed for interoperability with joint and allied systems.

Space-Based Infrared System (SBIRS): Though not a weapon system the SBIRS will play an integral part in future JTAMD. It will enhance the capabilities of a Space Based Weapon System to support TMD missions of missile warning, missile tracking, technical intelligence and battlespace characterization. The fully deployed SBIRS will consist of three space-based segments and a ground element, and will provide the capability to detect, track and report ballistic missiles in all phases of flight.

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